Neuroradiology

Note: The examination for those who are recertifying their subspecialty certificate (CAQ) in neuroradiology or for those who choose 3-4 modules in neuroradiology will have greater depth and breadth than the examination for those choosing 1-2 modules.

1. Neuroanatomy
    - Brain (including hemispheres, brainstem, cranial nerves, sella/parasellar region, ventricular system and functional areas)
    - Spinal canal and paraspinal
    - Cranial and vertebral
    - Structural head and neck (including oropharynx, nasopharynx, orbits, skull base, salivary glands, sinuses, temporal bone, thyroid gland, larynx, parapharyngeal space, hypopharynx)
    - Vascular (including carotid and vertebrobasilar extracranial arterial and venous system, intracranial arterial and venous system, spinal cord arterial and venous system, blood-brain barrier function, dural sinus drainage)

2. Physiology
    - Function of specific structures and regions of the brain and related areas (including cerebral and cerebellar areas, cranial nerves, spinal cord, related peripheral nerve distribution)
    - Vascular phenomena (including arterial and venous flow, blood-brain barrier, local perfusion, regional zones of vascular function of supply and drainage)
    - Reactive phenomena (including edema, tissue perfusion, toxic insult and externally administered biologic and physiologic contrast agents used in imaging)

3. Pathology
    - Neoplasm (including primary and secondary tumors of the cerebrum, cerebellum, cranial vault, spine and spinal cord, head and neck)
        -Intraaxial and extraxial neoplasms
        - Adult and pediatric neoplasms
        -Non-neoplastic tumorous conditions
    - Vascular disease (including stroke, hemorrhage, atherosclerosis, vascular malformations and aneurysms, congenital vascular abnormalities, vasculitis, concepts of functional blood flow, blood-brain barrier phenomena, dynamic blood flow imaging, venous infaction, border zone infarction and hypoxia/anoxia)
    - Infection (including pathogens of bacterial, viral, fungal, prion and parasitic origin)
        -Anatomic and physiologic considerations including concepts of abscess, leptomeninges, blood borne sepsis,

ventriculitis, sinusitis
-Specific anatomic relationships in the brain, spine, orbit, sinus and neck

- Non-infectious conditions of inflammation (including demyelination, collagen vascular disease and autoimmune response
- Metabolic, degenerative and reactive disorders
- Hydrocephalus and cysts
- Trauma (including classifications of head, head and neck and spine injury; anatomic considerations of intracranial, hemispheric, brainstem, cranial vault, neck, spine and vertebral column and spinal cord injury)
    - gross and microscopic/axonal considerations of injury
    - external factors for injury (including penetration, high velocity, vehicular, child abuse, toxic, radiation)
- Congenital disorders (including conditions in the brain, spine, head and neck, skull, neuronal migration, phakomatoses, hamartomatous malformations, genetic based disorders, dysplasias)
- Head and neck (including disorders of the orbit, sinuses, temporal bone, salivary system, nasopharynx, oropharynx, hypopharynx, larynx, thyroid gland and skull base)
- Spine and spinal disorders (including degenerative, neoplastic, congenital, infectious/inflammatory, traumatic and vascular)

4. Clinically related disease information
    - Clinical presentations of neuropathologic conditions
    - Basic laboratory supportive information
    - Historical profiles of disease presentation
    - Relationship to other clinically related disciplines, involving imaging needs in neurology, neurosurgery, otolaryngology, orthopedics, endocrinology, pediatrics and emergency medicine

5. Functional technology in neuroimaging
    - Modalities (including computed tomography; magnetic resonance imaging including functional, spectroscopic, diffusion/perfusion, tensor and angiography; invasive and non-invasive angiography; myelography, ultrasound, nuclear medicine, radiography)
    - Contrast utilization (including CT, MR, angiographic, safety including dose, treatment of contrast reactions, sedation)
    - Safety of ionizing and non-ionizing energy (including basic radiation untilization and safety precautions; MRI safety conditions)

Sample Questions:

Respond T (True) to the two most common causes of multiple parotid tumors in adults.
Respond F (False) to less common causes of multiple parotid tumors in adults.

T F Benign mixed tumor
T F Warthin tumor (true)
T F Adenoid cystic carcinoma
T F Mucoepidermoid carcinoma
T F Acinic cell carcinoma (true)

In which of the following would an intraglandular mass most likely be malignant?

A. Parotid gland
B. Submandibular gland
C. Sublingual gland (correct)
D. Thyroid gland

Regarding paranasal sinus pathology, respond T to the following statements that are true and F to those statements that are false.

T F Aspergillosis typically occurs in immunocompromised patients. F
T F 80% of sinus osteomas occur in the frontal sinus. T
T F Antrochoanal polyps are usually associated with allergic sinusitis. F
T F Inverted papillomas are more common in men than in women. T